IN THE CLAIMS

Please amend claim 19 as shown below. Please cancel claim 1-18 and 25, and add new claims 26-50. A complete listing of the claims is shown below.

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Currently Amended) A method of processing symbols received in a multi-carrier multiple-input multiple-output (MIMO) communication system, comprising:

obtaining a plurality of streams of received symbols for a plurality of receive antennas, wherein each of the plurality of streams of received symbols includes symbols received on a plurality of subbands of an associated receive antenna, and wherein the plurality of streams of received symbols include at least one stream of transmitted symbols having been multiplexed such that the transmitted symbols in each of the at least one stream are sent from [[~~the~~]] [[a]]plurality of transmit antennas and such that the at least one stream starts in the same subband, wherein the plurality of streams of received symbols are received at approximately the same time; and

processing the plurality of streams of received symbols to recover the at least one stream of transmitted symbols utilizing an interference estimation from another stream of the plurality of streams.

20. (Original) The method of claim 19, wherein the processing includes

performing equalization on the plurality of streams of received symbols to detect the at least one stream of transmitted symbols, and

recovering each detected stream of transmitted symbols.

21. (Original) The method of claim 19, wherein the processing is based on a successive interference cancellation (SIC) technique.

22. (Original) The method of claim 19, wherein the processing includes

performing equalization on the plurality of streams of received symbols to detect a first stream of transmitted symbols in the at least one stream,

recovering the detected stream of transmitted symbols,

estimating interference due to the recovered stream of transmitted symbols, and

canceling the estimated interference from the plurality of streams of received symbols to obtain a plurality of streams of modified symbols, and

wherein the performing and recovering are repeated on the plurality of streams of modified symbols to recover a second stream of transmitted symbols in the at least one stream.

23. (Original) The method of claim 22, wherein the interference is estimated based on a coded interference estimation technique.

24. (Original) The method of claim 22, further comprising:

determining a rate for each stream in the at least one stream based on an estimated received signal quality for the stream.

25. (Cancelled)

26. (New) A wireless communication multi-input multi-output apparatus, comprising:

at least two antennas; and

a processor coupled to each of the at least two antennas, the processor comprising an interference cancellation unit configured to receive a data stream received at the at least two antennas and a decoded data stream generated by the processor.

27. (New) The wireless communication apparatus of claim 26, wherein the processor comprises a plurality of stages, wherein a first stage of the plurality of stages comprises the interference cancellation unit and a second stage of the plurality of stages comprises a second stage processor and another interference cancellation unit both of which comprise an input coupled to an output of the interference cancellation

unit, and wherein the another interference cancellation unit comprises an input coupled to a second decoded data stream generated by the second stage and the decoded data stream comprises a first decoded data stream generated by the first stage.

28. (New) The wireless communication apparatus of claim 27, wherein the first stage is configured to decode signals transmitted at a first frequency and the second stage is configured to decode signals transmitted a second frequency that is different than the first frequency.

29. (New) The wireless communication apparatus of claim 27, wherein a third stage of the plurality of stages comprises a third interference cancellation unit and a third processor each of which includes an input coupled to an output of the another cancellation unit, and wherein the third interference cancellation unit includes an input configured to receive a third decoded data stream generated by the third stage.

30. (New) The wireless communication apparatus of claim 26, further comprising at least two transmitters each coupled to one of the at least two antennas.

31. (New) The wireless communication apparatus of claim 26, wherein the interference cancellation unit comprises an equalization stage and a cancellation stage coupled to the equalization stage.

32. (New) The wireless communication apparatus of claim 26, wherein the interference cancellation unit subtracts interference components identified from the decoded data stream to generate further symbols of the decoded data stream.

33. (New) The wireless communication apparatus of claim 26, wherein the interference cancellation unit comprises at least one software module that is executed by the processor.

34. (New) The wireless communication apparatus of claim 26, wherein processor is selected from a group consisting of an ASIC, DSP, DSPD, PLD, or FPGA.

35. (New) A wireless communication apparatus, comprising:

at least two antennas; and

a processor coupled to the at least two antennas, wherein the processor equalizes a plurality of streams of received symbols to detect a first stream of transmitted symbols in at least one stream of the plurality of streams, recovers transmitted symbols in the first stream, estimates an interference based upon the transmitted symbols that were recovered, and performs cancellation upon a second stream of the plurality of streams based upon the estimated interference to recover a second group of symbols.

36. (New) The wireless communication apparatus of claim 35, wherein the processor estimates interference based upon the second group of symbols and performs cancellation upon a third stream of transmitted data based upon the estimated interference based upon the second group of symbols to recover a third group of symbols.

37. (New) The wireless communication apparatus of claim 36, further comprising at least two transmitters coupled to the at least two antennas.

38. (New) The wireless communication apparatus of claim 35, wherein the first stream is received at a first frequency and the second stream is received at a second frequency that is different than the first frequency.

39. (New) The wireless communication apparatus of claim 35, wherein processor is selected from a group consisting of an ASIC, DSP, DSPD, PLD, or FPGA.

40. (New) The wireless communication apparatus of claim 35, wherein the processor estimates interference only when data symbols are not recovered from one of the plurality of data streams

41. (New) A wireless communication apparatus, comprising:

at least two antennas;

means for equalizing a first data stream of a plurality of data streams received at the at least two antennas;

means for recovering first data symbols from the first data stream;

means for estimating interference based upon the first data symbols and generating an estimated interference; and

means for performing cancellation on a second data stream of the plurality of data streams based upon the estimated interference.

42. (New) The wireless communication apparatus of claim 41, further comprising

means for recovering the second data symbols from the second data stream;

means for estimating interference based upon the second data symbols and generating a second estimated interference; and

means for performing cancellation on a third data stream of the plurality of data streams based upon the second estimated interference.

43. (New) The wireless communication apparatus of claim 41, further comprising means for controlling operation of the means for estimating interference so that the means for estimating interference operates only when data symbols are not recovered from one of the plurality of data streams.

44. (New) The wireless communication apparatus of claim 41, wherein the means for recovering first data symbols comprises means for recovering first data symbols transmitted using a first frequency and the means for recovering second data symbols comprises means for recovering second data symbols transmitted using a second frequency that is different than the first frequency.

45. (New) The wireless communication apparatus of claim 41, wherein the means for equalizing is coupled to each of the at least two antennas.

46. (New) The wireless communication apparatus of claim 41, further comprising means for transmitting the estimated interference to a transmitter of the plurality of data streams.

47. (New) A method of recovering data from a signal transmitted over a wireless link, the signal including a plurality of data streams, comprising:

equalizing the signal to generate the plurality of data streams;

recovering first data symbols from a first data stream of the plurality of data streams;

estimating an interference based upon the first data symbols; and

canceling the interference estimated from a second data stream of the plurality of data streams.

48. (New) The method of claim 47, further comprising estimating an interference based upon second data symbols recovered from a second data stream of the plurality of data streams and canceling the interference estimated from a third data stream of the plurality of data streams.

49. (New) The method of claim 47, wherein the first data stream and the second data stream are transmitted at different frequencies.

50. (New) The method of claim 47, further comprising performing estimating the interference only when data symbols are not recovered from one of the plurality of data streams.